

Appl. No. 09/536,932
Amdt. dated February 28, 2005
Reply to Office Action of December 28, 2004

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-26 (Canceled).

1 27. (New) A method of providing an image of a sample with a spectral
2 imaging system, the method comprising:

3 illuminating the sample with radiation from an illumination source within a
4 first band of wavelengths, wherein the first band of wavelengths excites regions within the sample
5 causing the regions to emit radiation within a second band of wavelengths;

6 spectrally resolving the wavelengths within the second band of wavelengths
7 with an interferometer that comprises at least first and second turning mirrors, one polarizing beam
8 splitter, a detector array and a processor coupled to the detector array and coupled to a monitor;

9 creating an interferogram of the sample with the interferometer that is
10 superimposed on an image of the sample transmitted by the interferometer, the interferogram
11 creating step comprising:

12 preferentially reflecting a first polarization with the beam splitter to the
13 first turning mirror;

14 preferentially transmitting a second polarization with the beam
15 splitter to the second turning mirror; and

16 combining the first and second polarizations;

17 imaging the sample and the interferogram of the sample on the detector
18 array;

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19 outputting a plurality of signals corresponding to an intensity at each pixel
20 of the detector array; and

21 displaying an image of the sample with the processor on the display.

1 28. (New) A method in accordance with claim 27 wherein the first
2 polarization is perpendicular to a plane of incidence.

1 29. (New) A method in accordance with claim 27 wherein the first
2 polarization is parallel to a plane of incidence.

1 30. (New) A method in accordance with claim 27 further comprising
2 performing a Fourier transform for each pixel with the processor.